

expected, shortly develop into a technological institute for engineering purposes, and a technological institute for chemical matters will be established at Cawnpore. Another matter of high importance referred to in the report is the change recently made with the object of introducing more practical work into the course for the degree of Bachelor of Science—a necessary step to meet the growing demand for good teaching in science, which is evidenced by the doubling, in five years, of the number of affiliated colleges preparing for science degrees, and a large increase in the number of undergraduates studying science.

## SOCIETIES AND ACADEMIES.

### LONDON.

**Royal Society, December 12, 1907.**—"On the Scattering of the  $\beta$  Rays from Uranium by Matter." By J. A. Crowther. Communicated by Prof. J. J. Thomson, F.R.S.

The results of the experiments described are summarised as follows:—

(1) A parallel pencil of  $\beta$  rays is scattered in its passage through matter, the scattering being practically complete after the rays have traversed a thickness of material which varies from 0.015 cm. for aluminium to 0.0002 cm. for gold.

(2) The scattering, after correction for the loss of energy, due to the absorption of the rays may be represented by an equation of the form  $I/I_0 = e^{-\sigma d}$ , where  $d$  is the thickness of the material traversed by the rays, and  $\sigma$  is the coefficient of scattering for the rays,  $I_0$  being the initial intensity of a narrow parallel pencil of  $\beta$  radiation, crossing a small fixed cross-section of the pencil, and  $I$  the intensity crossing the same cross-section when a thickness  $d$  of material is placed in the path of the beam at a considerable distance from the fixed cross-section.

(3) The ratio of the coefficient of scattering  $\sigma$  to the coefficient of absorption  $\lambda$  is approximately constant for all the substances measured, its average value being about 13. The values of the ratio  $\sigma/\rho$ , where  $\rho$  is the density, show similar variations to those for  $\lambda/\rho$ .

December 12, 1907.—"Preliminary Note on the Operational Invariants of a Binary Quantic." By Major P. A. MacMahon, F.R.S.

**Mineralogical Society, January 21.**—Prof. H. A. Miers, F.R.S., president, in the chair.—Zeolites from the neighbourhood of Belfast: F. N. A. Fleischmann. The author gave an account of a number of hitherto unrecorded zeolite localities near Belfast which he visited in November last. The localities described are quarries in the lower basalt of the neighbouring hills, the most important being two, the first situated on the north side of the hill, which is locally known as Cat Carne, the second on the north-east slopes of Collinward. The first quarry is the most prolific in zeolites in the neighbourhood, yielding fine specimens of apophyllite, analcite, chabazite, levynite, faerolite, &c. In the second quarry cavities are rare, but when they occur are, as a rule, large, and are usually lined with colourless tabular apophyllite crystals which reach sometimes an inch and a half across, and are associated with large hemispherical aggregates of natrolite.—Strüverite and its relation to ilmenorutile: Dr. G. T. Prior and Dr. F. Zambonini. The mineral was found in the pegmatite of Craveggia, N. Piedmont. In its crystallographic characters it is almost precisely similar to rutile, tapiolite, and ilmenorutile (F. Z.). Chemically (G. T. P.) it is closely related to ilmenorutile, and contains titanite, niobite, and tantalite acids with oxide of iron, in proportions corresponding approximately with the formula  $\text{Fe}(\text{TaNb})_2\text{O}_6 \cdot 4\text{TiO}_2$ . At first it was thought to contain zirconia as an essential constituent; the supposed zirconia, however, was shown on further examination to consist of niobite and tantalite acids, which, after the fusion of the mineral with  $\text{KHSO}_4$  and treatment with water, had passed into solution with the titanite acid. In the presence of as much titanite acid as occurs in strüverite (40 per cent.) it was found that the greater part of the niobite and tantalite acids could thus pass into solution, and when a dilute solution of sulphuric acid (5 per cent.  $\text{H}_2\text{SO}_4$ ) was used instead of water in treating the melt obtained

with  $\text{KHSO}_4$ , the whole passed into solution. New analyses of ilmenorutile from the Ilmen Mountains and from Norway showed that the titanite acid has been previously much over-estimated, and is present, in the first case, only up to 53 per cent., and in the other to about 54½ per cent. The mineral from the Ilmen Mountains was also found to contain tantalite acid up to about 15 per cent. The most reasonable view of the composition of these minerals appears to be that they are solid solutions of tetragonal rutile ( $\text{TiO}_2$ ) with the crystallographically similar tetragonal moscovite or tapiolite,  $\text{Fe}(\text{TaNb})_2\text{O}_6$ .—Twin structure: Dr. John W. Evans. The author adopts as a definition of a twin crystal that it is a crystal consisting of two component parts such that (a) parallel lines in general have not the same physical characters in the same direction in the two components; (b) one or more "twin-planes" exist such that all lines parallel to (1) any line in a twin-plane, or (2) the "twin-axis" normal to a twin-plane, have the same physical characters in the same or opposite directions in the two components. He shows that this definition includes all twins by reflection, rotation, or inversion (= reflection + rotation), and divides twin-axes into eleven classes according to the odd or even cyclic characters of the twin-axis, the relations between the terminations of the twin-axis, and the relations between the disposition in space of the structure of the two components. He describes twins as amphitetic, homotetic, or antitetic according as lines parallel to the twin-plane have in both components the same physical characters (1) in both directions; (2) in the same directions; or (3) in the opposite directions.—A simple method of drawing crystals of calcite and other rhombohedral crystals, and of deducing the relations of their symbols: Prof. W. J. Lewis. The author described a simple method of drawing crystals of calcite and other rhombohedral crystals, in which the principal axis and the twin-axis lie in the plane of the paper. The method is not well adapted for showing simple forms, but with combinations and twinned crystals the drawings closely resemble ordinary clinographic drawings, and are much more easily and rapidly constructed. The geometrical relations between the faces and the relations between the Millerian and Naumannian symbols are readily followed from these drawings. Some unusual twinned crystals of calcite were shown and described; one shows the form {917} twinned on {011}, and another {13.0.11} twinned on the same law.—The structure of perovskite from the Burgumer Alp, Pfäfersthal, Tyrol: H. L. Bowman. The examination of the optical properties and etching figures of transparent cubic crystals from this locality confirms the interpretation of the structure of perovskite proposed by Baumhauer from the study of crystals from the Ural Mountains and from Zermatt. The crystals are mimetic, and belong to the orthorhombic system, the "cubes" being formed by a combination of basal pinacoid {001} and a prism {110} with an angle of 90°, and having a lamellated structure due to twinning about faces of {110} and {111}.

**Geological Society, January 22.**—Sir Archibald Geikie, K.C.B., Sec.R.S., president, in the chair.—The origin of the pillow-lava near Port Isaac in Cornwall: Clement Reid and Henry Dewey. The Upper Devonian strata around Port Isaac consist of marine slates, in which occurs a sheet of pillow-lava. The pillows measure usually from 2 feet to 5 feet in diameter, but range up to 8 feet. The individual pillows are disconnected. Their mutual relations seem to prove that they were soft when deposited. Each pillow shows internally a central vacant space or open sponge, succeeded by a thick shell of vesicular lava, followed by a shell of banded rock. The whole mass is so vesicular that it must have been very light. The association with fine-grained marine strata shows that this lava was probably submarine. The specific gravity of the whole mass must have been low, not greatly exceeding that of sea-water. The lava seems to have been blown out into thick-walled bubbles. The mass was for a time in the spheroidal state, and the sheet could flow like a liquid. This eruption seems to have been analogous to that of Mont Pelée, described by Dr. Tempest Anderson and Dr. Flett, except that it was submarine instead of subaerial.—The subdivision of the Chalk at Trimmingham (Norfolk): R. M. Brydson.

**Royal Anthropological Institute, January 28**—Annual meeting.—Prof. D. J. Cunningham, F.R.S., in the chair.—Anniversary address, anthropology in the eighteenth century: Prof. **Cunningham**. The work of the period centres round five men, Camper, White, Blumenbach, Prichard, and Lawrence, of each of whom an interesting account was given.

MANCHESTER.

**Literary and Philosophical Society, November 26, 1907.**—Prof. H. B. Dixon, F.R.S., president, in the chair.—Demonstration illustrating the formation of acetylene from elementary substances: Prof. E. **Knecht**. On heating a small piece of calcium on charcoal before the blow-pipe, the metal readily took fire, and, after burning with a brilliant orange flame for about two seconds, sank into the mass of the charcoal. After the latter had been allowed to cool, it was broken up, when a hard lump was found which yielded acetylene on treatment with water.—New reactions for the characterisation of mercerised cotton: J. **Hübner**. The author has found that, on immersing mercerised and ordinary cotton in a solution of iodine in saturated potassium iodide solution for a few seconds, and afterwards washing with water, the colour of the mercerised cotton quickly changes to a bluish-black, whilst the ordinary cotton becomes lighter in colour and changes to a brownish-chocolate shade. After further washing the ordinary cotton becomes white, whilst the mercerised material remains a bluish-black colour, which fades very slowly on prolonged washing.—The direct combination of carbon and hydrogen: H. F. **Coward**. In experiments made with small quantities of highly purified carbon, the author has obtained from 0.1 gram of carbon, containing a maximum of 0.9 c.c. of hydrogen, 100 c.c. to 120 c.c. of methane by direct union with hydrogen.

December 10, 1907.—Prof. H. B. Dixon, F.R.S., president, in the chair.—Some notes on the mammals of Lundy Island: T. A. **Coward**. The notes were the outcome of a few days spent in trapping on the island; some of the specimens obtained were exhibited.—Notes on some destructive mites: C. G. **Hewitt**. The author described a new mite, *Lohmannia insignis*, Berl., var. *dissimilis*, n. var., which was found feeding on the scale-leaves of tulip bulbs. Two other mites which have occurred in the Manchester district were described, viz. *Rhizoglyphus echinopus* and *Glycyphagus spinipes*.

January 14.—Prof. H. B. Dixon, F.R.S., president, in the chair.—The atomic weight of chlorine: Dr. E. C. **Edgar**. The method used to re-determine this constant was to burn pure dry chlorine, at the tip of a quartz jet, in an atmosphere of pure dry hydrogen in a quartz "combustion vessel"; the hydrogen chloride formed was condensed in a limb of it by liquid air. As the mean of eight experiments, the atomic weight of chlorine calculated from the ratio weight of chlorine burnt/weight of hydrogen burnt is 35.194; from the ratio weight of hydrogen chloride caught—weight of hydrogen burnt/weight of hydrogen burnt it is 35.193 (atomic weight of hydrogen=1). If the atomic weight of oxygen is taken as 16, that of chlorine becomes 35.462 and 35.461 respectively.—The production of photographs in the colours of nature: A. **Brothers**.

January 28.—Prof. H. Lamb, F.R.S., in the chair.—A new type of dynamical stability: A. **Stephenson**. A system in a position of equilibrium and capable of oscillation about that position may be acted on by periodic force in such a way that no oscillation is generated; thus the equilibrium of a pendulum is not disturbed by the action of vertical force. The object of the communication was to establish the remarkable property of this non-generating type of disturbance in maintaining an equilibrium which would otherwise be unstable.

PARIS.

**Academy of Sciences, February 3.**—M. A. Chauveau in the chair.—The existence of crystallised sodium fluoride as an element of the nepheline syenites of the Los Islands: A. **Lacroix**. These rock specimens were collected by M. Villiaume from Ruma. In order that unweathered material only should be obtained, the specimens were removed by blasting with dynamite, and about half a ton of rock was brought to Paris. One syenite was found

to contain a new mineral, the mineralogical and physical characters of which are described in the present paper. It has a smaller refractive index ( $n_D = 1.328$ ) than any other known mineral, and appears to consist of sodium fluoride, with traces of manganese, calcium, potassium, and possibly zirconia. The mineral is named villiaumite, and its mode of origin is discussed.—The heat of formation of the anhydrous oxides of strontium and barium: M. **de Forcrand**. Strontia and baryta cannot be purchased pure, but if the hydroxides are placed in a platinum boat and heated to  $850^\circ$  in a current of dry hydrogen, absolutely pure, white SrO and BaO can be obtained, the platinum boat not being attacked. The heats of solution found are higher than those of Thomsen, possibly on account of the greater purity of the material.—Observations of the sun made at the Observatory of Lyons during the third quarter of 1907: J. **Guillaume**. The results are summarised in three tables, giving the number of spots, their distribution in latitude, and the distribution of the faculae in latitude respectively.—The development of an arbitrary function according to the functions of Laplace: Léopold **Fejér**.—A new electric arc furnace applicable to laboratory researches: Louis **Clerc** and Adolphe **Minet**. For an E.M.F. of 50 or 60 volts, by suitably proportioning the area of cross-section of the furnace to the current, an arc of any length can be obtained. In the furnace figured, using from 1 to 2 kilowatts, any desired temperature from a dull red heat upwards can be obtained, and capable of dealing with from 2 to 40 grams of material.—The use of flames as valves for high-tension alternating currents: André **Cathiard**.—Some anomalous modifications of the band spectra of various compounds in the magnetic field: A. **Dufour**. M. Henri Becquerel has attributed the peculiar behaviour of the bands of calcium fluoride, previously described by the author, to the presence of impurities. This view would appear to be improbable, since similar phenomena are now shown to be exhibited by the chlorides and fluorides of all the alkaline earths.—The reduction of indigo by the electrolytic method: H. **Chaumat**. The method recently described by the author was anticipated by Goppelsröder in 1882.—Some complex salts of iron in which the iron is masked: P. **Pascal**. Recently precipitated ferric pyrophosphate is soluble in sodium pyrophosphate, the solubility being independent of the temperature and concentration of the sodium salt. When the solution is saturated, the constituents are in the proportion  $\text{Fe}_3(\text{P}_2\text{O}_7)_3 : 3\text{Na}_4\text{P}_2\text{O}_7$ , which may be written  $\text{Na}_4\text{Fe}_3(\text{P}_2\text{O}_7)_3$ , or sodium ferropyrophosphate comparable with the ferricyanide, and the behaviour of the salts, together with the isolation of the acid itself, confirm the view that such a complex acid exists.—Some new derivatives of camphenylene: its constitution: L. **Bouveault** and G. **Blanc**.—The order of addition of ammonia to organic  $\alpha$ -oxides of asymmetrical structure: K. **Krassousky**. The reactions between ammonia and trimethylethylene oxide and isobutylene oxide have been studied, and the conclusion is drawn that in the combination of ammonia with asymmetrical  $\alpha$ -oxides, the hydroxyl group is found attached to the carbon atom containing the least hydrogen.—The genesis of certain minerals of alumina and iron. Lateritic decomposition: Jean **Chautard** and Paul **Lemoine**.—The presence of scapolite gneiss and cipolin in Dahomey: Henry **Hubert**.—The origin of the fertile soils of western Morocco: Louis **Gentil**.—The solution of saccharose isotonic with the eggs of Strongylocentrotus: Jacques **Loeb**. The author contests that his experimental results are in strict agreement with those of M. Delage.—The morphology and evolution of the Sabellarians of Saint Joseph: Ch. **Gravier**.—Contribution to the study of the calorific solar radiation: C. **Féry** and G. **Milochau**. An account of work done in the observatory at the summit of Mont Blanc in 1907. The apparatus was standardised by pointing at an electric furnace, and gave an effective absolute temperature for the centre of the solar disc of  $5555^\circ\text{C}$ . The value found for this temperature in 1906 was  $5620^\circ\text{C}$ .

CALCUTTA.

**Asiatic Society of Bengal, January 8.**—Notes on Indian mathematics, ii. Aryabhata: G. R. **Kaye**. The most important part of this paper consists of a translation

of Āryabhata's "Ganita," and a comment thereon. These are prefaced by brief notes which explain the position occupied by Āryabhata in the history of mathematics. The point of view of the writer differs from that of those who have previously treated the subject in that he holds that it is beyond all doubt that Āryabhata's work owes its origin to the Alexandrian school of mathematicians. Āryabhata does not claim to be the discoverer of the rules he gives, and it is thought that the "Ganita" was intended by him to be supplementary to the mathematical knowledge of the Hindus of his time. The "Ganita" is examined in close detail, and abundantly confirms this hypothesis. The claims that have been made for Āryabhata—that he was the inventor of our modern system of arithmetical notation; that he discovered a more accurate value for  $\pi$  than any of his predecessors; that he was the first to give a systematic solution for indeterminate equations of the first degree—are shown to be unsound (see also p. 347).—Studies in experimental breeding of the Indian cottons: an introductory note: H. Martin Leake. Breeding experiments have been undertaken at Cawnpur, and the third generation has now been reached. As a result of numerous measurements of the leaf it has been found that if narrow-lobed and broad-lobed leaved plants be crossed, the proportions of the leaves in the first generation (F<sub>1</sub>) approximate remarkably to the arithmetic mean of those of the two parents, and this appears to be true for all crosses, whether they be made between the extreme forms of *Gossypium neglectum* or between such divergent types as *G. arboreum* and *G. herbaceum*. In the F<sub>2</sub> generation of crosses, plants with typical broad and with typical narrow-lobed leaves appear, just as ascertained laws of heredity teach us to expect. From the way in which intermediates such as have been artificially raised occur naturally in the fields of the United Provinces of Agra and Oudh, it is apparent that cross-fertilisation is common. Further, in illustration it is cited that a packet of seed of *G. arboreum* taken without precautions yielded two out of fourteen plants the parentage of which was obviously impure, and which therefore stand as evidences of natural cross-fertilisation of *G. arboreum* by some other species of *Gossypium*.

## DIARY OF SOCIETIES.

### THURSDAY, FEBRUARY 13.

ROYAL SOCIETY, at 4.30.—The Constitution of the Electric Spark: T. Royds.—On the Determination of Viscosity at High Temperatures: Dr. C. E. Fawcitt.—The Effect of Hydrogen on the Discharge of Negative Electricity from Hot Platinum: Prof. H. A. Wilson. F.R.S.—The Decomposition of Ozone by Heat: Dr. E. P. Perman and R. H. Greaves.  
ROYAL SOCIETY OF ARTS, at 4.30.—The New Imperial Gazetteer of India: R. Burn.  
MATHEMATICAL SOCIETY, at 5.30.—Proof that every Algebraic Equation has a Root: Dr. H. A. de S. Pittard.—On the Uniform Approach of a Continuous Function to its Limit: Dr. W. H. Young.—Note on  $q$ -differences: Rev. F. H. Jackson.—An Extension of Eisenstein's Law of Reciprocity (Second Paper): A. E. Western.—Conformal Representation and the Transformation of Laplace's Equation: E. Cunningham.

### FRIDAY, FEBRUARY 14.

ROYAL INSTITUTION, at 9.—Biology and History: Dr. C. W. Saleeby.  
ROYAL ASTRONOMICAL SOCIETY, at 5.—Anniversary Meeting.  
PHYSICAL SOCIETY, at 8.  
MALACOLOGICAL SOCIETY, at 8.—Annual Meeting.—President's Address: Malacology versus Palaeoconchology: B. B. Woodward.

### MONDAY, FEBRUARY 17.

ROYAL SOCIETY OF ARTS, at 8.—The Theory and Practice of Clock Making: H. H. Cunynghame, C.B.  
VICTORIA INSTITUTE, at 4.30.—Philosophy and Evolution: Prof. H. L. Orchard.

### TUESDAY, FEBRUARY 18.

ROYAL INSTITUTION, at 3.—Membranes: Their Structure, Uses and Products: Prof. William Stirling.  
ZOOLOGICAL SOCIETY, at 8.30.  
ROYAL STATISTICAL SOCIETY, at 5.  
INSTITUTION OF CIVIL ENGINEERS, at 8.—Shaft-sinking at the Horden Colliery, South-east Durham: J. J. Prest.—The New York Rapid-transit Subway: W. B. Parsons.

### WEDNESDAY, FEBRUARY 19.

GEOLOGICAL SOCIETY, at 8.—Notes on the River Wey: H. Bury.  
ROYAL MICROSCOPICAL SOCIETY, at 8.—Eye-pieces for the Microscope: E. M. Nelson.—The Life-history of a New Protophyte: Rev. Eustace Tozer.—On Dimorphism in the Recent Foraminifer *Alveolina boscii*: F. Chapman.—Exhibits: Slides illustrating the Life-history of some Diptera: C. L. Curties.—An Improved Mercury-Vapour Lamp: J. E. Barnard.  
ROYAL METEOROLOGICAL SOCIETY, at 7.30.—Formation of Snow Rollers: C. Browett.—Comparison of Ship's Barometer Readings with Those Deduced from Land Observations: E. Gold.

### THURSDAY, FEBRUARY 20.

ROYAL SOCIETY, at 4.30.—Probable Papers:—Notes on the Application of Low Temperatures to some Chemical Problems. (1) Use of Charcoal in Vapour Density Determination. (2) Rotatory Power of Organic Substances: Sir James Dewar, F.R.S., and Dr. H. O. Jones.—On the Osmotic Pressure of Compressible Solutions of any Degree of Concentration. Part II. Cases in which both Solvent and Solute are Volatile: A. W. Porter.—Effects of self-induction in an Iron Cylinder when traversed by Alternating Currents: Prof. Ernest Wilson.

ROYAL INSTITUTION, at 3.—Wood: its Botanical and Technical Aspects: Prof. W. Somerville.

INSTITUTION OF MINING AND METALLURGY, at 8.

LINNEAN SOCIETY, at 8.—Experiments with Wild Species of Tuber-bearing Solanums: A. W. Sutton.—The Life-history and Larval Habits of Tiger Beetles (Cicindela): Dr. V. E. Shelford.—On a Possible Case of Mimicry in the Common Sole: Dr. A. T. Masterman.—Exhibit: Stereoscopic Photographs of Alpine Plants in Natural Colours: T. Ernest Waltham.

INSTITUTION OF ELECTRICAL ENGINEERS, at 8.—Electrical Power in Railway Goods Warehouses: H. Henderson.—Electric Power in Docks: C. E. Taylor.

CHEMICAL SOCIETY, at 8.30.—The Action of Thionyl Chloride and of Phosphorus Pentachloride on the Methylene Ethers of Pyrocatechol Derivatives: G. Barger.—The Preparation of Conductivity Water: H. Hartley, N. P. Campbell and R. H. Poole.—Derivatives of *para*-Diaziminobenzene: G. T. Morgan and Miss F. M. G. Micklethwait.—A Study of the Diaz-reaction in the Diphenyl Series: G. T. Morgan and Miss F. M. G. Micklethwait.—Organic Derivatives of Silicon. Part VI. The Optically Active Sulphobenzylethylpropylsilyl Oxides: F. S. Kipping.—A Simple Manometer for Vacuum Distillation: N. L. Gebhard.

### FRIDAY, FEBRUARY 21.

ROYAL INSTITUTION, at 9.—The Ether of Space: Sir Oliver Lodge, F.R.S.  
INSTITUTION OF MECHANICAL ENGINEERS, at 8.—Annual Meeting.—Tests of a Live Steam Feed-water Heater: Prof. J. Goodman and D. B. MacLachlan.

## CONTENTS.

PAGE

Is Mars Habitable? By Dr. William J. S. Lockyer	337
Agriculture in France	339
Chemistry in the Seventeenth Century. By W. A. D	339
Town Gas	340
Our Book Shelf:—	
Dudeney: "The Canterbury Puzzles and other Curious Problems"	341
Allan: "Matter and Intellect: A Reconciliation of Science and the Bible"	341
Brillouin "Leçons sur la Viscosité des Liquides et des Gaz"	341
Huxley: "Aphorisms and Reflections"	341
Letters to the Editor:—	
The Inheritance of "Acquired" Characters.—Dr. G. Archdall Reid; Rev. E. C. Spicer; A. D. D.	342
Atmospheric Electricity and Fog.—Dr. Charles Chree, F.R.S.	343
The Penetrating Radiation.—W. W. Strong	343
Classification of Secondary X-Radiators.—Dr. C. G. Barkla and C. A. Sadler	343
Auroral Characteristics of Clouds.—George C. Simpson	344
Reissner's Fibre in the Frog.—George E. Nicholls	344
<i>Rhynchobdella aculeata</i> in Ceylon.—Dr. Arthur Willey, F.R.S.	345
Poseidonius on the Originator of the Theory of Atoms.—Dr. T. J. J. See	345
Agricultural and Horticultural Research. (Illustrated.) By R. N.	345
The Geology of the Transvaal. (Illustrated.) By Dr. F. H. Hatch	346
The History of Arithmetical Notation. By G. B. M.	347
Prof. J. B. Pettigrew, F.R.S. By W. C. M.	348
W. A. Shenstone, F.R.S. By Prof. William A. Tilden, F.R.S.	348
Notes	349
Our Astronomical Column:—	
Occultations of Uranus in 1908	353
Observations of Comets 1907 <i>d</i> and 1907 <i>e</i>	353
Planets now Visible	353
Encke's Comet, 1908 <i>a</i>	353
A Catalogue of Zodiacal Stars	353
Meteors observed on January 2	353
The Winds of Northern India. By E. G.	353
Medical Inspection in London	355
Theory of the Mirage. (Illustrated.) By G. H. B.	356
A Contribution to the History of Ironclads	356
The Smithsonian Institution	357
University and Educational Intelligence	357
Societies and Academies.	358
Diary of Societies	360